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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,993	04/03/2007	Wyatt T. Riley	030283	9475
23596 7590 10/28/2009 QUALCOMM INCORPORATED 5775 MOREHOUSE DR. SAN DIEGO, CA 92121				
EXAMINER				
QURESHI, AFSAR M				
ART UNIT		PAPER NUMBER		
2472				
NOTIFICATION DATE		DELIVERY MODE		
10/28/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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kscanla@qualcomm.com  
nanm@qualcomm.com

## Office Action Summary

**Application No.**

10/565,993

**Applicant(s)**

RILEY ET AL.

**Examiner**

AFSAR M. QURESHI

**Art Unit**

2472

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-101 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 96-99 is/are allowed.
- 6) ☒ Claim(s) 1-75, 77-81, 90-95, 100 and 101 is/are rejected.
- 7) ☒ Claim(s) 76, 82-89 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 94 is objected to because of the following informalities: Device claim 94 is incorrectly dependent upon method claim 67.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim(s) 1-72 and 94 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps or acts to be performed, a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. The instant claims neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-28, 73-75, 77-81, 90-95, 100-101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watters et al. ("Watters"), US 5,982,324, in view of Fernandez-Corbaton et al. ("Fernandez"), US 6,289,280, and further in view of Maki, US 5,323,163.

Claims 1-28, 77-81, 92, 100 and 101. Watters discloses a Global Positioning System (GPS) system and method of determining a geographic position of a remote unit, e.g., Mobile Telephone Unit (fig. 2). Method steps include collecting differential GPS error correction data and sent to a mobile terminal along with TOA/TDOA, using GPS pseudoranges of the reference stations depending on the geographic nature of the coverage area over a cellular network. A first position solution is calculated using first position network-based measurements in the case of bad geometry and non-network based measurements (Figure 4). (See 'Abstract', col. 3, lines 41 through col. 4, lines 8) including unit fault measurements, initial position measurements, GPS measurements, residual magnitude measurements, etc., (See col. 2, lines 14-38).

Watters further discloses that a combination of GPS satellite signals and the pseudosatellite signals are utilized to calculate position of the terminal (see col. 17, lines

59 through col. 18, lines 3), weighting technique is used to combine the results (see col. 23, lines 10-15).

Claims 73-75, 90-91.       Watters discloses GPS receiver 750 receiving satellite signals by the GPS antenna 755 from the satellites and calculates the pseudoranges of each of the GPS satellites and the results are forwarded to DGPS processor 675 (see fig. 7 and col. 13, lines 1-47)

Claims 93-95.       As discussed in the rejection of claims 1-28, Watters discloses a base station implementing position location (see col. 8, lines 65-67, fig. 4A, also, col. 13, lines 55-67).

Similarly, in an alternative embodiment, Watters discloses position determination device included in the remote unit (mobile terminal) (see fig. 7).

Watters does not specifically disclose method of measuring position data based on pilot phase, angle of arrival etc.

However, Fernandez discloses detailed method for determining geographic position of remote unit and selecting between the various positions based on predetermined selection criteria (see col. 6, lines 42-53 and col. 7, lines 24-34). The position data including, pilot phase measurements (see col. 3, lines 20-39); angle of arrival measurements; time of arrival measurements, time difference of arrival measurements, altitude and round trip delay measurements (see col. 2, lines 60 through col. 3, lines 39 and col. 3, lines 15-47).

Therefore it would have been obvious to one of ordinary skill in the art, at the time of invention, to be able to modify Watters (as desired by Watters in col. 16, lines 22-30) by utilizing teachings of Fernandez specifically, method steps of determining algebraic solution to GPS terrestrial location therefore enabling one of skill in the art to solve the location system equations in scenarios where a non-iterative solution is desirable.

Watters and Fernandez, in combination disclose assorted network and non-network based measurements as disclosed above, however, both Watters and Fernandez, do not specifically disclose non-network –based measurements, such as, geometric dilution of precision measurements (GDOP); position dilution of precision measurements (PDOP); horizontal dilution of precision measurements (HDOP) weighted dilution of precision measurements (weighted DOPs); etc.,

Maki, in the same field of endeavor, specifically discloses all special dilution of precision minimization measurements (see figs. 1-5 and col. 5, lines 7 through col.6, lines 46)

Therefore it would have been obvious to one of ordinary skill in the art, at the time of invention, to be able to utilize all special DOP GPS measurements within the combined invention of Watters and Fernandez in order to obtain an optimized accuracy in the desired orthogonal component(s) of position and in multiple navigation solutions.

***Allowable Subject Matter***

4. Claims 96-99 are allowed over prior art of record.

Prior art of record fails to disclose method step of selecting a desired final-fix position solution of the remote unit based on respective figures of merit of the desired prefix solution and the final-fix position solution and the estimated errors of the position solution (claim 96).

5. Claims 76, 82-89 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Prior art of record fails to disclose method steps of generating data using an advanced forward link trilateration covariance matrix.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Dennis (US 5,467,282); Dennison et al. (US 5,546,445); Kishi (US 5,144,318); Schipper (US 5,986,603) & (US 5,825,328); Krasner (US 5,663,734).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AFSAR M. QURESHI whose telephone number is

(571)272-3178. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on (571) 272 7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

10/22/2009

/Afsar M Qureshi/  
Primary Examiner  
Art Unit 2472